Claims

[c1] 1. A valve arrangement suitable for use with a rotary peristaltic pump and which is capable of allowing a flow of fluid in a first direction and capable of preventing the flow of fluid in a second direction, wherein the valve arrangement comprises a valve having a cracking pressure of approximately 0.10 to about 0.20 bar.

[c2] 2. The valve arrangement of Claim I wherein the cracking pressure is about 0.15 bar.

[c3] 3. The valve arrangement of Claim 1 wherein the valve comprises a flexible membrane which is deformable under pressure in a desired flow direction.

[c4] 4. The valve arrangement of Claim 3 wherein the flexible membrane includes at least one perforation which opens at a selected extent of deformation of the flexible membrane to permit flow therethrough.

[c5] 5. The valve arrangement of Claim 3 wherein the valve has a support associated with the flexible membrane for limiting the deformation of the flexible membrane in a direction opposite the flow direction thereby preventing back flow.

[c6] 6. The valve arrangement of Claim 1 wherein the valve includes a piston member having a mushroom shaped head.

[c7] 7. A device for the administration of at least one fluid to a patient comprising:

a valve arrangement including a member that is deformable under pressure in a desired flow direction and having a cracking pressure of approximately 0.10 to about 0.20 bar;

an inlet tube for providing, at least in part, a fluid flow path between a container and an inlet port of the valve arrangement; and

an outlet tube for providing, at least in part, a fluid flow path between an outlet of the valve arrangement and a patient.

[c8] 8. The device of Claim 7 wherein the valve arrangement is coupled to a rotary peristaltic pump.

[c9] 9. The device of Claim 7 wherein the valve comprises a flexible membrane which is deformable under pressure in a desired flow direction.

[c10] 10. The device of Claim 9 wherein the flexible membrane includes at least one perforation which opens at a selected extent of deformation of the flexible membrane to permit flow therethrough.

[c11] 11. The device of Claim 9 wherein the valve has a support associated with the flexible membrane for limiting the deformation of the flexible membrane in a direction opposite the flow direction thereby preventing back flow.

[c12] 12. A method for manufacturing a valve arrangement for use in a medical device for delivering a fluid to a patient comprising the steps of producing a chamber having an inlet port and an outlet port, locating within the chamber a one way valve between the inlet port and the outlet port for allowing fluid to flow in only one direction, and having a cracking pressure of approximately 0.10 to about 0.20 bar.

[c13] 13. The method of Claim 12 wherein the valve comprises a flexible membrane which is deformable under pressure in a desired flow direction and the flexible membrane includes at least one perforation which opens at a selected extent of deformation of the flexible membrane to permit flow therethrough.

[c14] 14. A method of providing a fluid to a patient comprising the steps of administering an effective amount of a fluid via a valve arrangement having a cracking pressure of approximately 0.10 to about 0.20 bar.

[c15] 15. The method of Claim 14 wherein the fluid provides nutrition to the patient.

[c16] 16. A method of Claim 14 wherein the fluid provides complete nutrition

to the patient.

[c17] 17. A method of treating a patient comprising the steps of administering a fluid from a container to a patient using a pump to propel the fluid via a valve arrangement having a cracking pressure of approximately 0.10 to about 0.20 bar.

[c18] 18. The method of Claim 17 wherein the valve arrangement is coupled to a peristaltic pump.

[c19] 19. A device for controlling the flow of a fluid from a container to a patient including a valve arrangement that is so constructed and arranged to prevent the flow of fluid to a patient at certain conditions, allow the flow of fluid to a patient at a cracking pressure, and allow a certain level of a free flow of fluid to the patient.

[c20] 20. The device of Claim 19 wherein the cracking pressure is approximately 0.10 to about 0.20 bar.